Agricultural productivity, food prices and inflation in Nigeria

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Abstract

Despite being an agrarian economy, Nigeria has been characterized by high food prices and inflation. This is against the expectation that in an economy where agricultural productivity is supposedly high, increased food abundance should exalt pressure on food prices, making it possible for food prices to decline, hence a decrease in inflation. To examine if agricultural productivity has any effect on food prices and if such effect transmits into inflation, time series data for Nigeria between 1981 and 2021 were used. The data were calibrated on a 3-variable structural vector autoregressive model (SVAR). Results indicated that the transmission of agricultural productivity to inflation in Nigeria is a long-run phenomenon. Increased agricultural productivity induces a positive change in food prices while an increase in food prices is accompanied by fall in inflation in the long run. The study recommends measures such as subsidization of agricultural inputs or legislation to keep input costs low so as to prevent the food prices increase that is likely to result from increased agricultural productivity due to increased production costs.

***Keywords*:** Agricultural policy, Food policy, Price level, Money supply.

***JEL Classification Codes*:** E31, N57, Q11, Q18, Q19.

1. Introduction

Inflation is a major macroeconomic problem in Nigeria. A trend analysis shows that between 1960 and 1969, the average rate of inflation in the country stood at 3.49%; 15.81% between 1970 and 1979; 20.89% between 1980 and 1989; 30.64% between 1990 and 1999; 12.33% between 2000 and 2009; and 11.80% between 2010 and 2019. Inflation rate in 2021 stood at 15.99%. This suggests that the goal of achieving price stability in the country is persistently turning out as a mirage. While it is acceptable that a rise in the price of different commodities add up to cause inflation, it is equally true that commodities that constantly appear in the market demand and supply schedules are most likely to contribute to inflation more. Food items constitute a great portion of a basket of items demanded by a household, hence, rise in the prices of food items have the capacity to trigger inflation.

Nigeria is largely an agrarian economy. About 60% of the country's entire land mass is arable while its bodies of water are a good source of seafood and around 70% of the labour force are engaged in diverse agricultural activities. Expectedly, food production should not be far less than abundance, such that any changes in the demand or supply of food items would not have a significant influence on food prices, including the general price level some of the time. It is expected also that higher levels of agricultural productivity should reduce the prices of food products and at the same time, have a decreasing effect on the overall inflation rate (Benfica, Boughton, Mouzinho and Uaiene, 2017; Salik & Aras, 2020). It is worrisome that in the face of enormous and favourable agricultural resources in the country, food prices have continued to soar while the inflation rate in the country is equally high.

In fact, the issues around agricultural productivity and food prices provide a cause for alarm to regard the persistence of food inflation as an enabler of the persistent rise in the country's general price level. For instance, between 1981 and 2021, food prices have increased steadily from an index of 48 in 1981 to 129 in 2021. Within the same period, inflation has remained high, recording double digits 71% of the time over 40 years. According to Benfica, Boughton, Mouzinho, and Uaiene (2017), between 2008 and 2011, before the food price increase, increases in agricultural productivity rates and in the intensity of participation were recorded. The period also recorded modest increases in terms of productivity for all crop groups. Caused by global changes that are taking place at the global level, the alteration in prices of agricultural food products, along with the increasing influence of inputs prices in the national context is particularly important (Njegovan & Simin, 2020).

This could be a contributing factor to current inflation in Nigeria which stood at over 15% in 2021. According to the World Bank (2021), April 2021 recorded the highest year-on-year inflation rate

at 18.2% in four years. At the same time, the total increase in inflation was accounted for by food prices at over 60%. Certainly, 2020 and 2021 represented Nigeria's highest heave in food-price inflation in almost two decades. The foregoing has therefore necessitated the need for an enquiry into the nature of the relationship between agricultural productivity, food prices and inflation in Nigeria. The pertinent question here is – how has agricultural productivity contributed to food price and inflation changes in Nigeria? The remaining part of this paper is sectioned to contain literature review in section two, methodology in section three, results and discussions in section four while the conclusion and recommendations are presented in section five.

2. Literature Review

2.1. Conceptual issues

2.1.1. The concept of agricultural productivity

The productivity concept in agriculture is used to represent the input-output share of agricultural products (Dharmasiri, 2013). While the measurement unit of individual products is weight, called crop yield, the difference in the variety of products makes the measurement of the overall productivity of agricultural output difficult. According to Dharmasiri (2013), productivity in agriculture refers to "the market value of the final output". It is possible to compare this productivity with other inputs, typically labour, capital or land. Alejandro (2003) refers to such comparisons as "partial measures of productivity". Another way to measure agricultural productivity is by looking at total factor productivity (TFP). This method draws a comparison between "an index of agricultural inputs and an index of total outputs". This method came about as a result of shortfalls of the partial productivity measures, based on the extent to which it is difficult to identify their causal factors. Economic literature attributes change in TFP to technological improvements (Zepeda, 2007).

2.1.2. Food prices

Food prices refers to the global and cross-country average price of particular food commodities (Saliu, 2021). Apart from serving as the basis for measuring the relationship between agricultural output and market demand, the price of goods strongly affect food affordability and income. Again, in addition to influencing consumer affordability, food prices also have influence on the earnings of farmers and producers. At the aggregate level, the macro-economic policy, especially the monetary policy is directly and indirectly affected by food price volatility level (Lapp & Smith, 1993; Karali & Power, 2013). Higher food prices typically benefit producers while lower food prices confer benefits on consumers. Therefore, it is a possibility for food markets to exert a strong

influence on the affordability of food, malnutrition and hunger. Fang (2019) asserts that "the world food price elasticity is less than the elasticity of world food consumption".

2.2. Theoretical issues

Theoretically, this study builds its foundation from the "cost-push" theory of inflation, propounded by Sir James Stuart 1767. The cost-push theory builds on the assumption that prices of goods are principally determined by their costs while money supply acts in response to demand. Under these circumstances, inflationary pressure is likely to result from increasing costs. The inflationary pressure becomes unceasing through the action of the price-wage corkscrew.

The theoretical underpinning of this study is also adopted from Leoning (2009) who developed a model of food prices in an agrarian economy. He presented an experimental model of inflation model that incorporates diverse inflation models which necessitated various hypothetical tests as against imposing limitations on the models. This also accounts for the peculiarities of developing economies, which are predominantly agrarian in nature. In his opinion, inflation comes into effect, due to price adjustments, either from excess demand or supply import costs. The theory focuses on the monetary, external and domestic sector markets. this includes the markets for tradable food and non-food agricultural products.

Precisely, Loening (2009) hypothesized that changes in the price level of the domestic goods are caused by movements away "from the long-run equilibrium in the money market and the external sector, represented by food and non-food products". Within the short to medium run, food inflation is affected by the agricultural goods domestic market. This is occasioned by changes in supply and other factors notably imports-induced inflation, inflation of the oil prices, and inflation of the world fertilizer. Although this may also have effect on inflation, the most important is likely the domestic agricultural market shocks.

These theoretical underpinnings, therefore, suggest that agricultural productivity influences food costs, which in turn affect food prices. The changes in food prices transmit to inflation changes in Nigeria.

2.3. Empirical reviews

Studies on agricultural productivity and food prices can be found in the work of Njegovan and Simin (2020) who examined inflation and prices of agricultural products. They found that agricultural food prices will not decrease except if constant population growth exerts higher pressure. In his essay on "agricultural productivity and the impact of food price change on welfare in Africa", Manzamasso (2020) found that balancing the preferences of the demand and supply

advances the promotion of the newly developed variety, especially if production is driven by consumption along the seed-food value chain.

Fang & Zibo (2019) used data from 1964 to 2013 and analyzed the factors influencing world food prices. They found that the world food price is negatively and significantly affected by the world agricultural productivity, world food production and the exchange rate. However, the world food stock and the world crude oil price had no significant effect on world food prices as found by the study.

The "relationship between agricultural productivity and market participation and performance as a result of an increase in market prices in Mozambique" was examined by Benfica, Boughton, Mouzinho, and Uaiene (2017). With the aid of used panel data before and after the change in price regime, they found a strong association between market participation and productivity.

Oyinbo & Rekwot (2014) investigated the associations between "inflationary trend, agricultural productivity and economic growth in Nigeria" with the aid of time series data between 1970 and 2011. Data analysis was done using the bounds (ARDL) cointegration approach. The results showed one-way causalities from inflation to agricultural productivity, and from agricultural productivity to economic growth. No causal relationship was established between inflation and economic growth.

Mesike, Okoh and Inoni (2010) investigated "the effect of inflation and government agricultural policies on relative price erraticism of cash crops in Nigeria" using the co-integration approach and Error Correction Model on historical data between 1970 and 2008. They found relative price variability is positively and significantly affected by inflation in the short run and long run.

Akpan & Udoh (2009) estimated the movement of relative food prices, and the inflation rate trends under various agricultural policies in Nigeria. They used data from 1961 to 2009. The data were evaluated using the GARCH (1,1) model and ANOVA based on OLS estimation technique. The study discovered that "the impact of inflation on the relative price variability of food was positive and significant".

Though a majority of the studies on agricultural production and food prices examined inflation and prices of agricultural products in Nigeria, influencing factors of the world food prices, agricultural production and inflation rate in Nigeria, as well as the long-run productivity and food prices, empirical literature provides little on the relationship between agricultural productivity and food prices. Studies close to this line of thought considered the effect of agricultural productivity and food-price change on welfare (Manzamasso, 2020), "food crop marketing and agricultural productivity in a high price environment" (Benfica, Boughton, Mouzinho and Uaiene, 2017). This

shows that there is still a literature gap on the relationships between agricultural productivity, food prices and inflation in Nigeria that needs to be filled.

3. Methodology

This research adopted an analytical approach. The study utilized secondary data from the World Bank database and the database of Trading Economics 1981 to 2021. The data cover Agricultural productivity (AGP) which is obtained from the World Bank, Food prices (FP) which is sourced from Trading Economics, while inflation (INF) was obtained from the World Bank. The study built a SVAR (structural vector autoregressive) model to examine in what way agricultural productivity causes food prices to affect inflation in Nigeria. This is because it is a very flexible tool, especially for the analysis of policy actions on the economy. SVAR is also the best model for examining pass-through relationships among interdependent variables. given the perceived feedback mechanism between food prices and agricultural productivity, it has become more appropriate to use SVAR. The test of the unit root was conducted using Augmented Dickey-Fuller (ADF) test, while post-estimation diagnostics tests (the normality test, serial correlation test and test of heteroskedasticity) were conducted for reliability checks.

3.1. Model specification

The econometric model estimated here was built from the two theories under consideration. The cost-push theory of inflation attributes changes in inflation to the cost of goods and services. These costs transmit into prices. The inflation model by Leoning (2009) recognizes the specific role of food prices in shaping inflation in an economy. Based on these theories, this study regresses inflation against food prices and agricultural productivity. The theories suggest food prices as a function of agricultural productivity. Mathematically, this is expressed as:

$$FP = f(AGP) \qquad (1)$$

$$FP_t = \alpha + \beta AGP_t + \varepsilon_t \qquad (2)$$

Where;

FP = food prices and *AGP* = agricultural productivity.

Also, an increase in prices translates into an increase in the general price level. Therefore, inflation (INF) is positively influenced by food prices (FP), such that,

$$INF = f(FP) \qquad (3)$$

$INF_t = \beta_0 + \beta_1 FP_t + \varepsilon_t$ (4)

Where, *INF* = the inflation rate.

Equations (1) & (3) depict a transmission outcome of a positive in agricultural productivity to inflation through a positive change in food prices. Clearly, any increase in agricultural productivity results to an upsurge in food prices. The increase in food prices accordingly causes inflation. Symbolically,

$$\Uparrow AGP \rightarrow \Uparrow FP \rightarrow \Uparrow INF$$

The study preferred SVAR owing to its benefit over the other forms of VAR by making it possible for ascertaining the instant effect of a shock in agricultural productivity on inflation through food prices. To have a complete model, the study assumes that unpredicted changes in agricultural productivity are exogenic viz-a-viz the matching values of the other macroeconomic variables contained within in the SVAR.

Using (3) as the optimal lag length, a general SVAR (3) model is stated as:

$$A_0 Y_t = A_1 Y_{t-1} + A_2 Y_{t-2} + A_3 Y_{t-3} + \varepsilon_t \text{ - 4}$$

Where A_0 represents the matrix of instant (contemporaneous) coefficients, $A_1 - A_3$ are matrices of coefficients at lags 1 - 3; Y_t is a matrix of current-value endogenous variables, while $Y_{t-1} - Y_{t-3}$ are matrices of lags of endogenous variables.
We specify our SVAR (3) model as follows:

$$\begin{bmatrix} 1 & -\Pi_{12}^0 & -\Pi_{13}^0 \\ -\Pi_{21}^0 & 1 & -\Pi_{23}^0 \\ -\Pi_{31}^0 & -\Pi_{32}^0 & 1 \end{bmatrix} \begin{bmatrix} INF_t \\ FP_t \\ AGP_t \end{bmatrix} = \begin{bmatrix} \Pi_{11}^1 & \Pi_{12}^1 & \Pi_{13}^1 \\ \Pi_{21}^1 & \Pi_{22}^1 & \Pi_{23}^1 \\ \Pi_{31}^1 & \Pi_{32}^1 & \Pi_{33}^1 \end{bmatrix} \begin{bmatrix} INF_{t-1} \\ FP_{t-1} \\ AGP_{t-1} \end{bmatrix} +$$

$$\begin{bmatrix} \Pi_{11}^2 & \Pi_{12}^2 & \Pi_{13}^2 \\ \Pi_{21}^2 & \Pi_{22}^2 & \Pi_{23}^2 \\ \Pi_{31}^2 & \Pi_{32}^2 & \Pi_{33}^2 \end{bmatrix} \begin{bmatrix} INF_{t-2} \\ FP_{t-2} \\ AGP_{t-2} \end{bmatrix} + \begin{bmatrix} \Pi_{11}^3 & \Pi_{12}^3 & \Pi_{13}^3 \\ \Pi_{21}^3 & \Pi_{22}^3 & \Pi_{23}^3 \\ \Pi_{31}^3 & \Pi_{32}^3 & \Pi_{33}^3 \end{bmatrix} \begin{bmatrix} INF_{t-3} \\ FP_{t-3} \\ AGP_{t-3} \end{bmatrix} + \begin{bmatrix} \varepsilon_{1t} \\ \varepsilon_{2t} \\ \varepsilon_{3t} \end{bmatrix} \quad - \quad (5)$$

Based on the recursive method, which is often used in the econometric literature to accomplish identification of the model,$-\Pi_{12}^0$,$-\Pi_{13}^0$, and $-\Pi_{23}^0$ were reduced to zero for the SVAR(3). Thus, the becomes;

$$\begin{bmatrix} 1 & 0 & 0 \\ -\Pi_{21}^{0} & 1 & 0 \\ -\Pi_{31}^{0} & -\Pi_{32}^{0} & 1 \end{bmatrix}\begin{bmatrix} INF_t \\ FP_t \\ AGP_t \end{bmatrix} = \begin{bmatrix} \Pi_{11}^{1} & \Pi_{12}^{1} & \Pi_{13}^{1} \\ \Pi_{21}^{1} & \Pi_{22}^{1} & \Pi_{23}^{1} \\ \Pi_{31}^{1} & \Pi_{32}^{1} & \Pi_{33}^{1} \end{bmatrix}\begin{bmatrix} INF_{t-1} \\ FP_{t-1} \\ AGP_{t-1} \end{bmatrix} + \begin{bmatrix} \Pi_{11}^{2} & \Pi_{12}^{2} & \Pi_{13}^{2} \\ \Pi_{21}^{2} & \Pi_{22}^{2} & \Pi_{23}^{2} \\ \Pi_{31}^{2} & \Pi_{32}^{2} & \Pi_{33}^{2} \end{bmatrix}\begin{bmatrix} INF_{t-2} \\ FP_{t-2} \\ AGP_{t-2} \end{bmatrix} +$$

$$\begin{bmatrix} \Pi_{11}^{3} & \Pi_{12}^{3} & \Pi_{13}^{3} \\ \Pi_{21}^{3} & \Pi_{22}^{3} & \Pi_{23}^{3} \\ \Pi_{31}^{3} & \Pi_{32}^{3} & \Pi_{33}^{3} \end{bmatrix}\begin{bmatrix} INF_{t-3} \\ FP_{t-3} \\ AGP_{t-3} \end{bmatrix} + \begin{bmatrix} \varepsilon_{1t} \\ \varepsilon_{2t} \\ \varepsilon_{3t} \end{bmatrix} \text{ - - - - - (6)}$$

To avoid autocorrelations, we introduce a variance matrix and a matrix of error terms such that;

$$A_0 Y_t = \mathrm{B}U_t \qquad (7)$$

This can be presented in matrix form as follows;

$$\begin{bmatrix} 1 & 0 & 0 \\ -\Pi_{21}^{0} & 1 & 0 \\ -\Pi_{31}^{0} & -\Pi_{32}^{0} & 1 \end{bmatrix}\begin{bmatrix} INF_t \\ FP_t \\ AGP_t \end{bmatrix} = \begin{bmatrix} \delta_1 & 0 & 0 \\ 0 & \delta_2 & 0 \\ 0 & 0 & \delta_3 \end{bmatrix}\begin{bmatrix} U_{1t} \\ U_{2t} \\ U_{2t} \end{bmatrix} \ldots\ldots\ldots\ldots\ldots (8)$$

This implies that

$$A_0 E_t = \mathrm{B}U_t \qquad (9)$$

Where,

E = the matrix of initial volatility in the endogenous variables.

In matrix form,

$$\begin{bmatrix} 1 & 0 & 0 \\ -\Pi_{21}^{0} & 1 & 0 \\ -\Pi_{31}^{0} & -\Pi_{32}^{0} & 1 \end{bmatrix}\begin{bmatrix} e_t^{INF} \\ e_t^{FP} \\ e_t^{AGP} \end{bmatrix} = \begin{bmatrix} \delta_1 & 0 & 0 \\ 0 & \delta_2 & 0 \\ 0 & 0 & \delta_3 \end{bmatrix}\begin{bmatrix} U_{1t} \\ U_{2t} \\ U_{2t} \end{bmatrix} \ldots\ldots\ldots\ldots\ldots (10)$$

Consequently, we can set

$$E_t = A_0^{-1}\mathrm{B}U_t \qquad (11)$$

I.e.,

$$\mathrm{E} = \mathrm{SU} \qquad (12)$$

$\mathrm{S} = \mathrm{A}_0^{-1}\mathrm{B}$

In matrix notation,

$$\begin{bmatrix} e_t^{INF} \\ e_t^{FP} \\ e_t^{AGP} \end{bmatrix} = \begin{bmatrix} a & 0 & 0 \\ b & c & 0 \\ d & e & f \end{bmatrix}\begin{bmatrix} U_{1t} \\ U_{2t} \\ U_{2t} \end{bmatrix} \text{ - (13)}$$

Where a, b, c, d and e are initial responses.

a = inflation to own shock;

b = food prices to shock in inflation;

c = food prices to own shock;

d = agricultural productivity to shock in inflation;

e = agricultural productivity to food prices shock; and

f = agricultural productivity to own shock.

This enables us to compute initial responses.

4. Results and Discussions

This section of the paper presents and discusses the estimated results of the model used in this study. The data series considered in this study include inflation rate (INF), food prices (FP) and agricultural productivity (AGP). First, pre-estimation analysis is presented to ascertain the stationarity of the series under study. In addition, VAR optimal lag selection is carried out in order to identify the parsimonious model for the study. Next, the study presents and discusses the SVAR estimates generated using the model specified in the study. Proceeding the results in this section are discussions of the results based on economic theory and institutional occurrences in Nigeria.

4.1. Test for Unit Root

Table 1: Results of Unit Root Test using ADF

Series	**Level Prob.**	**1st Diff. Prob**	**O(I)**	**Remark**
INF	0.0130***	0.0000***	I(0)	Stationary at level.
FP	0.2012	0.0030***	I(1)	Integrated at 1st difference.
AGP	0.1335	0.0000***	I(1)	Integrated at 1st Difference.

Source: Computations using EViews 10.
*** indicate significance at 1% and 5% respectively.

Table 1 indicates that level integration for inflation rate while food prices and agricultural productivity are stationary at first difference. This suggests that inasmuch as inflation rate has no unit root problem, the problem of unit root in food prices and agricultural productivity could be removed after first differencing. Based on these results, food prices (FP) and agricultural productivity (AGP) were estimated at first difference so as to achieve stationarity at levels. To this end, the use of (SVAR) at levels for the analysis of the relationship among agricultural productivity, food prices and inflation in Nigeria is justified. The parsimonious model was estimated at the optimal lag of 3 as selected by Akaike information criterion (AIC).

4.2. Analysis of VAR estimates

4.2.1. The Money Supply to GDP Ratio Channel

Structural VAR Estimates

Table 2: Results of Contemporaneous Effects (Estimated A matrix)

Estimated A matrix:

1.000000	0.000000	0.000000
0.000333	1.000000	0.000000
-0.006286	-0.337578	1.000000

Agricultural productivity and food prices are not expected to have any instant effect on inflation in Nigeria. Similarly, we do not expect food prices to respond to instant changes in agricultural productivity. This is necessitated by the restrictions deliberately executed on the upper diagonal of the A matrix. In additional to the theoretical expectation, these restrictions were imposed for the SVAR model to achieve identification. The immediate response of inflation to shocks in food prices and agricultural productivity is not expected because economic theory assumes that actual impacts are only visible in the long run. As a result, even when a shock occurs in agricultural productivity and food prices, it takes a length of time before such is felt in the economy. Consequently, inflation does not respond to the contemporaneous shocks in agricultural productivity and food prices in Nigeria.

Although the A matrix reveals that the contemporaneous effect of inflation on food prices will be negative, and those of inflation and food prices on agricultural productivity will be positive, these contemporaneous effects are not statistically significant. This is due to the long-term nature of the relationship among the variables under investigation in this study.

The short-run impulse-responses are presented in the estimated matrix S. These are the responses of inflation, food prices and agricultural productivity to shocks in themselves and one another in the short-run. Results of Matrix "S" are presented below.

Table 3: Results of Short-run Impulse-Responses (Estimated Short-run matrix)

Estimated Short-run matrix:

13.61660	0.000000	0.000000
-0.004537	0.457561	0.000000
0.084066	0.154462	2.479469

Matrix "S" shows that in the first year (short run), inflation responds only to its own shock but does not respond to shock in food prices and agricultural productivity. If there is a positive shock in inflation, food prices will marginally decrease in the short run. This is because inflation itself is an end result of prices, including prices of food.

In addition to its own shock, short-run shocks in food prices and inflation will both have positive effects on agricultural productivity in Nigeria. A 1% shock in inflation and food prices in the short run will cause agricultural productivity to increase by 0.08% and 0.15% respectively. These short-run responses will be positive because typically, an increase in price is a motivation to producers as they aim to make more profit from the additional prices. The drive to increase yield due to increased prices will therefore raise agricultural productivity in the short run.

The long-run impulses and the responses from such are represented in matrix "F" whose results are presented below.

Table 4: Results of Long-Run Impulse-Responses (Estimated F matrix)

Estimated F matrix:

27.90178	-0.534295	1.242285
-0.106165	0.386209	0.146239
0.648309	-0.449213	1.445789

Estimated matrix "F" indicates that inflation, food prices and agricultural productivity will all respond positively to spontaneous changes in their own values in the long-run by 27.9%, 0.38% and 1.45% respectively.

The long-run responses of food prices and agricultural productivity to a shock in inflation in Nigeria will be in the same direction as is obtainable in the short run. However, the likely response of agricultural productivity to shock in food prices in the long run is negative (-0.45%). This is because continues rise in food prices will increase food supply over demand such that in the long run, food producers will no longer make profit from additional output. This will raise the cost of food production, transmitting into a fall in the overall agricultural productivity.

The long-run effect of a shockwave in agricultural productivity on food prices in Nigeria will be positive. If agricultural productivity increases by 1%, food prices is likely to increase by 0.15% in the long run. Increased productivity comes with increased cost of production. Since producers aim to make profit, the increased production costs are transferred to prices of food, consequent upon which food prices increase. Similarly, a shock in agricultural productivity will transmit the same

positive effect to inflation in the long run. A one-time positive shock in agricultural productivity by 1% is likely to cause a positive change in inflation by 1.24% in the long run.

Inflation is likely to negatively respond to a positive change in food prices in the long run. This is quite contradictory as it is the rise in the overall price level that leads to inflation. We would therefore expect that when food prices increase, inflation should also rise. However, the case is different for Nigeria because the demand priority of many Nigerians lies with meeting their basic needs (food, clothing and shelter). To keep up with the demand for food (which is a necessity) in the wake of rising food prices, Nigerians will reduce their demand for non-food items. Consequently, the fall in demand will cause prices of non-food items to fall, leading to overall price level fall.

Summarily, the SVAR results discussed in this paper suggest that while food prices and agricultural productivity are not expected to have any contemporaneous and almost immediate effects on inflation in Nigeria, in the long run, it responds negatively to food prices and positively to agricultural productivity. Food prices does not respond to shock in agricultural productivity in the current and short-term periods but responds marginally to changes in inflation in the current and short run periods, and negatively in the long run, while also responding positively to agricultural productivity in the long-run. Agricultural productivity is likely to respond negatively to food prices and inflation immediately but positively in the short run. In the long term, the response to inflation will be positive but that to food prices will be negative. The long-run relationship is symbolically expressed as follows:

$$\Uparrow AGP \rightarrow \Uparrow FP \rightarrow \Downarrow INF$$

5. Conclusion and Policy Recommendations

By the findings of this research, we conclude that the transmission of agricultural productivity to inflation in Nigeria is a long-run phenomenon. Increased agricultural productivity induces a positive change in food prices while increase in food prices is accompanied by fall in inflation in the long run.

Going by these findings and the discussions made in this study, the following recommendations are made. First, food is a basic necessity. Since majority of it comes from agriculture, individuals and government must make conscious efforts to increase agricultural productivity. To prevent the rise in food prices that is likely to result from increased agricultural productivity due to increased production costs, the government should use measures such as subsidization of agricultural inputs or legislation to keep input costs low. This will not just increase food availability but also prevent

rise in food prices. Similarly, in an unconventional situation, rise in food prices will cause inflation to fall. This is likely due to reduced demand for non-food items as a result of increased food prices. Making sure that food prices do not increase is the responsibility that the government must take seriously.

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